

AMENDMENT TO THE CLAIMS

Claims 1-25 (Cancelled)

26.(Currently Amended) An electronic component to be mounted on a printed board, said electronic component comprising:

an electrical connecting surface;

a plurality of electrical connecting portions provided on said electrical connecting surface in arrangement positions; and

at least one recognition reference mark located on a surface of the electronic component and serving as a reference for the arrangement positions of said electrical connecting portions.

27.(Currently Amended) An electronic component as claimed in claim 26, wherein said at least one recognition reference mark comprises a pair of recognition reference reference positioned symmetrically with respect to a center point of said electrical connecting surface, wherein said electrical connecting portions are disposed in an array that surrounds recognition reference marks.

28.(Currently Amended) An electronic component as claimed in claim 26, wherein said at least one recognition reference mark comprises a plurality of recognition reference marks that are positioned symmetrically with respect to a center point of said electrical connecting surface, wherein said recognition reference marks are located in a central portion of said electrical connecting surface, and said electrical connecting portions are disposed around recognition reference marks.

29.(Currently Amended) An electronic component as claimed in claim 26, wherein said recognition reference mark is provided on a side of said electrical connecting surface that is adapted to confront a mounting position of the printed board.

30.(Currently Amended) An electronic component as claimed in claim 29, wherein said recognition reference mark comprises a projection or a printed symbol.

31.(Currently Amended) An electronic component as claimed in claim 29, wherein said recognition reference mark includes coded information indicative of said electronic component.

32.(Currently Amended) An electronic component as claimed in claim 31, wherein the coded information of said recognition reference mark is information concerned with a state in which the electrical connecting portions are formed.

33.(Currently Amended) An electronic component as claimed in claim 26, wherein said recognition reference mark is located in a corner portion of an opposite side of the electronic component relative to said electrical connecting portions.

34.(Currently Amended) An electronic component as claimed in claim 26, wherein said recognition reference mark is formed on said electrical connecting surface simultaneously with said electrical connecting portions.

35.(Previously Added) An electronic component as claimed in claim 26, wherein said electrical connecting portions are solder bumps.

36.(Previously Added) An electronic component as claimed in claim 26, wherein said electrical connecting portions are lands.

37.(Withdrawn) An electronic component mounting method for taking out an electronic component from a component supply section and mounting the electronic component in a mounting position on a printed board, the method comprising:

recognizing, in a first recognition process, a reference mark that is provided on the electronic component to be mounted, wherein the reference mark serves as a reference of arrangement positions of electrical connecting portions provided on an electrical connecting surface of the electronic component and the printed board;

recognizing, in a second recognition process, a recognition mark for a target mounting position on the printed board;

checking the quality of the electronic component and correcting a positional orientation of the electronic component in a mounting stage in accordance with results of the first recognition process and the second recognition process; and

mounting of the electronic component if it has passed through the quality checking and positional correcting operations.

38.(Withdrawn) An electronic component mounting method for removing an electronic component from a component supply section and mounting the electronic component in a mounting position on a printed board, the method comprising:

recognizing a reference mark that is provided on the electronic component to be mounted, wherein the reference mark serves as a reference of arrangement positions of electrical connecting portions provided on an electrical connecting surface of the electronic component and the printed board;

checking the quality of the electronic component or correcting the position of the electronic component in a component mounting stage according to a result of recognizing operation; and

mounting the electronic component, if it has passed through the quality checking or correcting process, in the mounting position on the printed board.

39.(Withdrawn) An electronic component mounting method as claimed in claim 38, wherein the quality checking operation includes a component inspecting process for checking the electronic component for a state of formation of the electrical connecting portions recognized based on a relative position with respect to the reference mark of the electronic component.

40.(Withdrawn) An electronic component mounting method as claimed in claim 38, wherein a plurality of recognition marks of the target mounting position are provided on the printed board, and at least one of the recognition marks contains discrimination information of the electronic component to be mounted, the discrimination information being provided in the form of a two-dimensional bar code.

41.(Withdrawn) An electronic component mounting method as claimed in claim 38, wherein the reference mark that is provided on the electronic component includes coded information concerned with the state of formation of the electrical connecting portions on the electronic component, and the electronic component is processed on the basis of the information contained in the reference mark.

42.(Withdrawn) An electronic component mounting method as claimed in claim 38, wherein the reference mark, provided on the electronic component, is formed simultaneously with the electrical connecting portions.

43.(Withdrawn) An electronic component mounting method as claimed in claim 38, wherein the electrical connecting portions are solder bumps.

44.(Withdrawn) An electronic component mounting method as claimed in claim 38, wherein the electrical connecting portions are lands.

45.(Withdrawn) An electronic component mounting apparatus characterized by comprising:

a component supply section containing electronic components, wherein each of the electronic components includes an electrical connecting surface, a plurality of electrical connecting portions provided on said electrical connecting surface in arrangement positions, and a reference mark serving as a reference for the arrangement positions of said electrical connecting portions;

a mounting head for moving the electronic components from the component supply section to a mounting position and mounting the electronic components on the printed board;

a mounting table for supporting the printed board;

a component inspecting section for recognizing the reference mark of the electronic component to be mounted on the printed board;

a board recognizing section for recognizing a recognition mark on the printed board, said recognition mark indicating the mounting position of the printed board; and

a control section for executing a quality check or a positional correction of the electronic component during a mounting stage of the electronic component.

46.(Withdrawn) An electronic component mounting apparatus characterized by comprising:

a component supply section containing electronic components, wherein each of the electronic components includes an electrical connecting surface, a plurality of electrical connecting portions provided on said electrical connecting surface in arrangement positions, and a reference mark serving as a reference for the arrangement positions of said electrical connecting portions;

a mounting head for moving one of the electronic components from the component supply section to a mounting position and mounting the one electronic component on the printed board;

a mounting table for receiving the printed board upon which the one electronic component is to be placed;

a component inspecting section for recognizing the reference mark of the one electronic component to be mounted; and

a control section for checking the quality of the electronic component or correcting the position of the electronic component in an electronic component mounting stage in accordance with the result of recognition.

47.(Withdrawn) An electronic component mounting apparatus as claimed in claim 46, wherein the component inspecting station is capable of recognizing coded information contained in the reference mark.